

10/533082  
Rec'd PTO 28 APR 2005

## Preparation of oligomers derived from butenes

## Abstract

- 5      The present invention relates to a process for preparing oligomers consisting mainly of repeating units derived from 1- or 2-butene from a hydrocarbon stream consisting substantially of branched and linear hydrocarbon compounds having 4 carbon atoms, and comprising olefinic branched and linear hydrocarbon compounds having 4 carbon atoms (C<sub>4</sub> starting stream) by
- 10     a.     in step a), separating the C<sub>4</sub> starting stream into a fraction consisting mainly of linear hydrocarbon compounds having 4 carbon atoms (I-C<sub>4</sub> fraction) and a fraction consisting mainly of branched hydrocarbon compounds having 4 carbon atoms (b-C<sub>4</sub> fraction), by contacting the C<sub>4</sub> starting stream with a membrane which is easier to pass for linear hydrocarbon compounds having 4 carbon atoms than for branched hydrocarbon compounds having 4 carbon atoms,
- 15     b.     in step b), optionally after removing butanes, oligomerizing the olefinic hydrocarbon compounds having 4 carbon atoms present in the I-C<sub>4</sub> fraction,
- 20     c.     in step c), subjecting the olefinic hydrocarbon compounds having 4 carbon atoms present in the b-C<sub>4</sub> fraction to one of the following steps:
  - c1.    reaction with methanol to give methyl tert-butyl ether (step c1)
  - 25     c2.    hydroformylation to give substantially isovaleraldehyde (step c2)
  - c3.    polymerization to polyisobutylene (step c3)
  - c4.    dimerization to 2,4,4-trimethyl-1-pentene (step c4)
  - 30     c5.    alkylation, substantially to form saturated hydrocarbon compounds having 8 or 9 carbon atoms (step c5).